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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/680,325	10/06/2003	Ian A. Pancham	AMAT/8024/CMP/ECP/RKK	5447
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PATTERSON & SHERIDAN, LLP 3040 POST OAK BOULEVARD, SUITE 1500 HOUSTON, TX 77056			EXAMINER TADESSE, YEWEBDAR T	
			ART UNIT	PAPER NUMBER

1734

DATE MAILED: 08/09/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/680,325

Applicant(s)

PANCHAM ET AL.

Examiner

Yewebdar T. Tadesse

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 05 June 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) The invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-5, 8, 10 and 12-16 are rejected under 35 U.S.C. 102(b) as being anticipated by Kwag et al (US 6,197,150).

With respect to claim 1, Kwag et al discloses (see Figs 1 & 3) a fluid processing cell, comprising: a rotatable substrate support member (8) positioned in a processing volume (1), the substrate support member comprising: a base member having a central fluid aperture (passage 4) formed therein, and a fluid diffusion member (see Fig 3) sealably positioned to the base member and defining a fluid volume (buffer zone 10) therebetween, the fluid diffusion member having a plurality of radially positioned bores (holes 12) formed therethrough, and a fluid dispensing member (solution supply means) positioned above the fluid diffusion member and being configured to dispense a processing fluid onto a substrate (W) positioned on the substrate support member.

With respect to claims 2-3, Kwag et al discloses (see Fig 1) heated fluid supplied to the central fluid aperture (4) supplying heated fluid at a constant temperature in communication to the central aperture.

Regarding claims 4-5, Kwag et al discloses (see Fig 1) a plurality of inwardly

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extending substrate support member or ring (16) positioned to support a substrate (W) above the fluid diffusion member and in parallel relationship thereto and the support ring having inner diameter that is less than an outer diameter of the substrate and the fluid diffusion member.

As to claim 8, in Kwag et al (see Fig 5) the fluid dispensing member (solution supply means) comprises a pivotally mounted arm (see moving nozzle connected to line 44 column 5, lines 17-21 and column 7, lines 29-33) having dispensing nozzle (26) positioned on a distal end, the fluid arm being in fluid communication with at least one electroless solution source (40).

As to claim 10, Kwag et al discloses a plurality of heating elements (hot wires 14, positioned in communication with the diffusion member, the heating element being positioned between the radially positioned bores (12).

With respect to claim 12, Kwag et al discloses (see Figs 1 & 3) a deposition cell capable of depositing electroless solution, comprising: a cell body defining a processing volume (1); a rotatable substrate support member (8) positioned in a processing volume; a fluid diffusion member (see Fig 3) having a plurality of bores (12) formed through an upper surface thereof, and a fluid dispensing member (solution supply means) positioned to dispense solution onto an upper surface of the substrate. Kwag et al further discloses a plurality of bores being arranged in annular patterns (see Figs 2A-2C) about central axis of the fluid diffusion member and at least one substrate arm (16) extending inwardly over the upper surface of the fluid diffusion member, the at least one substrate support arm being configured to support a substrate in parallel

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relation to an upper surface of the fluid diffusion member in a face up orientation.

With respect to claims 13-16, Kwag et al teaches (see Figs 1, 3) that a substrate support provided with fluid passages (12) for a heated fluid in order to provide heat to the substrate and a plurality of fluid dispensing bores in communication with the central aperture (4) and a fluid heater (30) in communication with the plurality of fluid dispensing bores.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

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5. Claims 6-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kwag et al (US 6,197,150) in view of Shibagaki (US 2002/0195128 A1).

Kwag et al lacks teaching circular positioned rings of bores having an increasing diameter as the rings increase in distance from a central axis of the fluid diffusion member and wherein a diameter of the bores increase as a distance from the central axis increases. Shibagaki discloses (see Fig 5C) circular positioned rings of bores having an increasing diameter as the rings increase in distance from a central axis of the fluid diffusion member and wherein a diameter of the bores increase as a distance from the central axis increases. It would have been obvious to one of ordinary skill in the art at the time the invention was made to include rings of bores and bores as claimed in Kwag et al to effectively supply fluid to the bottom region of the substrate.

6. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kwag et al (US 6,197,150) in view of Wen (US 6,239,038).

Kwag et al (see Fig 1) the fluid dispensing member comprises an environmental shield (chamber 22) positioned above the fluid diffusion member. However a fluid dispensing member formed at a planar lower surface of the shield is not taught in Kwag et al. Wen discloses an environmental shield having a substantially planar lower surface and a fluid-dispensing aperture formed therein (see Figs 1 and 2). It would have been obvious to one of ordinary skill in the art at the time the invention was made to include a fluid dispensing member formed at a planar lower surface of the shield in Kwag et al to create an optimum fluid flow with the surface of the substrate as taught by Wen (see

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column 2, lines 37-44).

7. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kwag et al (US 6,197,150) as applied to claim 10 above and further in view of Carman et al (US 5,294,778).

Kwag et al lacks teaching individually controlled plurality of heating elements. However, it is well known in the art to individually control a plurality of heating elements of fluid diffusing member to provide different voltage of heat to the different regions of the substrate. For instance, Carman et al discloses (see Fig 3) a diffusion member substrate support having a plurality of heaters (12, 14 and 16) that are individually controlled. It would have been obvious to one of ordinary skill in the art at the time the invention was made to include individually controlled heaters in Kwag et al to operate the heating system at reduced voltages and inhibit arcing at the heater terminals as taught by Carman et al (see column 4, lines 40-45).

8. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kwag et al (US 6,197,150) as applied to claim 12 above and further in view of Tepman (US 5,566,744).

Kwag et al lacks teaching a lift pin assembly positioned in the substrate support assembly. However Tepman discloses (see Fig 2B) a lift pin assembly (221) positioned in the substrate support assembly. It would have been obvious to one of ordinary skill

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in the art at the time the invention was made to include a lift pin assembly in Kwag et al to lift the substrate as desired.

9. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kwag et al (US 6,197,150) in view of Shibagaki (US 2002/0195128 A1).

Kwag et al lacks teaching selectively positionable processing shield. Shibagaki discloses (see Fig 5C) a processing shield (15-18) having a substantially planar lower surface selectively positioned in parallel relationship to the fluid diffusion member.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to include a plurality of bores being arranged in annular patterns as claimed in Steve et al to effectively supply fluid to the bottom region of the substrate. It would have also been obvious to one of ordinary skill in the art at the time the invention was made to include a processing shield as claimed to effectively supply fluid to the bottom region of the substrate.

10. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kwag et al (US 6,197,150) as applied to claim 12 above and further in view of Carman et al (US 5,294,778).

Kwag et al lacks teaching individually controlled plurality of heating elements. However, it is well known in the art to individually control a plurality of heating elements of fluid diffusing member to provide different voltage of heat to different regions of the substrate. For instance, Carman et al discloses (see Fig 3) a diffusion member of



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substrate support having a plurality of heaters (12, 14 and 16) that are individually controlled. It would have been obvious to one of ordinary skill in the art at the time the invention was made to include individually controlled heaters in Kwag et al to operate the heating system at reduced voltages and inhibit arcing at the heater terminals as taught by Carman et al (see column 4, lines 40-45).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yewebdar T. Tadesse whose telephone number is (571) 272-1238. The examiner can normally be reached on Monday-Friday 8:00 AM-4: 30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chris Fiorilla can be reached on (571) 272-1187. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



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